



Project name: Broward County
MiniHybrid Thermal System

Transit agency: Broward County
Transit (BCT)

Location: Pompano Beach, Florida

TIGGER goal: Energy and GHG
emissions reduction

FTA region number: IV

Award amount: \$2,000,000

Congressional district: FL-17; FL-19;
FL-20; FL-21; FL-22; FL-2

Funding mechanism:
Recovery Act (ARRA)

Broward County Reduces Fuel Use with MiniHybrid Thermal System

Between May 2010 and January 2011, Broward County Transit (BCT) in Pompano Beach, Florida, used a \$2 million TIGGER award to replace bus cooling systems on 80 of its 288 buses and achieved a 5% reduction in fuel use.

BCT replaced the mechanically/hydraulically driven cooling systems with MiniHybrid Thermal Systems from Engineered Machined Products. The MiniHybrid Thermal System is a fully contained system that replaces the original equipment manufacturer-supplied bus alternator and cooling system with a high output alternator and a cooling package of heat exchangers and eight electronically controlled electric fans. The MiniHybrid kit includes temperature sensors for the engine charge air and engine jacket water flow paths in order to optimize cooling of those systems separately.

By integrating vehicle efficiency technology into 80 buses, BCT not only reduced fuel use, but also increased the average fuel efficiency of its fleet vehicles



Broward County Transit covers a service area of 410 square miles within Broward County, Florida. BCT buses connect to Palm Beach and Miami-Dade transit systems and to Tri-Rail. BCT operates 288 fixed route buses and 72 community buses, and provides paratransit service. In 2010, BCT transported an average of 120,085 passengers daily and its buses travelled 14 million miles.

Courtesy of BCT



A BCT bus retrofitted with an electric cooling system to improve fuel economy and reduce vehicle emissions.

by approximately 5%, enhanced bus performance, and reduced greenhouse gas emissions. Project partners, Electric Sales & Services and Engine & Accessory, Inc., assisted with the technology integration.

Prior to this TIGGER project, BCT tested MiniHybrid Thermal Systems on five of its 2005 NABI buses, and documented fuel savings of up to 8%. Based on these positive results, BCT used the TIGGER project funds to extend the retrofit to 80 other buses in the fleet.

As demonstrated by this project, the MiniHybrid Thermal System could be used by other transit agencies to retrofit existing transit fleets to achieve fuel savings and reduce greenhouse gas emissions.

Impact:

By integrating commercially available vehicle efficiency technology into its bus fleet, BCT reduced its fuel use by 5%.

Bus Retrofit Details

# of Buses	Year	Bus Length (Feet)	Model	Remaining Life Expectancy (Years)
5 Hybrid	2009	40	NABI	11
6 Diesel	2009	60	New Flyer	11
9 Hybrid	2009	60	New Flyer	11
30	2008	40	NABI	10
12 Hybrid	2008	40	NABI	10
18	2007	40	NABI	9

About TIGGER

The Transit Investment for Greenhouse Gas and Energy Reduction (TIGGER) Program was established in 2009 by the U.S. Department of Transportation's Federal Transit Administration (FTA). Designed to reduce energy use and greenhouse gas emissions in transit agencies around the country, the TIGGER Program made funds available for capital investments that would reduce greenhouse gas emissions or lower the energy use of public transportation systems. An initial \$100 million in American Recovery and Reinvestment Act grants funded 43 competitively-selected transit projects. In 2010, the FTA provided an additional \$75 million in grants to fund 27 new TIGGER projects. These 70 projects are employing a variety of technologies to meet the program goals, including solar installations, building efficiency improvements, wind technology, wayside energy storage for rail, and purchase of more efficient buses. In fiscal year 2011, FTA provided an additional \$49.9 million to continue the program.

For More Information

Broward County Transit:
www.broward.org/bct/Pages/Default.aspx

FTA TIGGER:
www.fta.dot.gov/TIGGER



U.S. Department of Transportation
Federal Transit Administration
1-866-377-8642

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